

FOAMABLE PREPARATIONS

Cross-Reference to Related Applications

5 This is a continuation application of PCT/EP02/07908, filed July 16, 2002, which is incorporated herein by reference in its entirety, and also claims the benefit of German Priority Application No. 101 34 729.4, filed July 17, 2001.

Field of Invention

10 The present invention relates to foamable cosmetic and dermatological preparations, in particular to skincare foamable cosmetic and dermatological preparations.

Background of the Invention

15 Foams or foam-like preparations are a type of disperse system. By far the most important and best known disperse systems are emulsions. Emulsions are two- or multi-phase systems of two or more liquids which are insoluble or only slightly soluble in one another. The liquids (pure or as solutions) are present in an emulsion in a more or
20 less fine distribution, which generally has only limited stability.

 Foams are structures of gas-filled, spherical or polyhedral cells which are delimited by liquid, semi-liquid, high-viscosity or solid cell ribs. The cell ribs, connected via points of intersection form a continuous framework. The foam lamellae stretch
25 between the cell ribs (closed-cell foam). If the foam lamellae are disturbed or if they flow back into the cell rib at the end of foam formation, an open-cell foam is obtained. Foams too - like emulsions - are thermodynamically unstable since a reduction in the surface area leads to the production of surface energy. The stability and thus the existence of a foam is thus dependent on to what extent it is possible to prevent its self-
30 destruction.

Cosmetic foams are usually dispersed systems of liquids and gases, where the liquid represents the dispersant and the gas represents the dispersed substance. Foams of low-viscosity liquids are temporarily stabilized by surface-active substances (surfactants, foam stabilizers). Because of their large internal surface area, such surfactant foams have a high adsorption capacity, which is utilized, for example, in cleaning and washing operations. Accordingly, cosmetic foams are used, in particular, in the fields of cleansing, for example as shaving foam, and of hair care.

To generate foam, gas is bubbled into suitable liquids, or foam formation is achieved by vigorously beating, shaking, spraying or stirring the liquid in the gas atmosphere in question, provided that the liquids comprise suitable surfactants or other interface-active substances ("foam formers"), which, apart from interfacial activity, also have a certain film-forming ability.

Cosmetic foams have the advantage over other cosmetic preparations of permitting a fine distribution of active ingredients on the skin. However, cosmetic foams can generally only be achieved using particular surfactants, which, moreover, are often not well tolerated by the skin.

A further disadvantage of the prior art is that such foams have only low stability, for which reason they usually collapse within approximately 24 hours. A requirement of cosmetic preparations, however, is that they have stability for years, as far as possible.

This problem is generally taken into account by the fact that the consumer produces the actual foam himself just before use using a suitable spray system for which purpose, for example, it is possible to use spray cans in which a liquefied pressurized gas serves as propellant gas. Upon opening the pressure valve, the propellant liquid mixture escapes through a fine nozzle, and the propellant evaporates, leaving behind a foam. Such systems according to the prior art develop, under the

addition of propellant gas, exclusively aqueous-moist foams which rapidly break following application.

After-foaming cosmetic preparations are also known per se. They are firstly applied to the skin from an aerosol container in flowable form and, after a short delay, develop the actual foam only once they are on the skin under the effect of the after-foaming agent present, for example a shaving foam. After-foaming preparations are often in specific formulation forms, such as, for example, after-foaming shaving gels or the like.

Summary of the Invention

An object of the present invention was to enrich the prior art and to provide cosmetic or dermatological foamable preparations which do not have the disadvantages of the prior art.

German laid-open specification DE 197 54 659 discloses that carbon dioxide is a suitable active ingredient for stabilizing or increasing the epidermal ceramide synthesis rate, which may serve to enhance the permeability barrier, reduce the transepidermal water loss and increase the relative skin moisture. To treat the skin, the CO₂ is, for example, dissolved in water, which is then used to rinse the skin. However, the prior art hitherto does not include any sort of cosmetic or dermatological bases in which a gaseous active ingredient could be incorporated in an adequate, i.e., effective, concentration.

It was thus a further object of the present invention to find cosmetic or dermatological bases into which effective amounts of gaseous active ingredients can be incorporated.

It was surprising and could not have been foreseen by the person skilled in the art that foamable cosmetic or dermatological preparations which comprise

I. an emulsifier system which consists of

A. at least one emulsifier A chosen from the group of wholly neutralized, partially neutralized or unneutralized branched and/or unbranched, saturated and/or

B. at least one emulsifier B chosen from the group of polyethoxylated fatty acid esters having a chain length of from 10 to 40 carbon atoms and a degree of ethoxylation of from 5 to 100 and

C. at least one coemulsifier C chosen from the group of saturated and/or unsaturated, branched and/or unbranched fatty alcohols having a chain length of from 10 to 40 carbon atoms,

and

II. up to 50% by weight – based on the total weight of the foamable preparation – of a lipid phase which comprises one or more non-polar lipids having a polarity of at least 30 mN/m

overcome the disadvantages of the prior art.

For the purposes of the present invention, foamable is understood as meaning that the preparations according to the invention form foams when they are formed, i.e., when, for example, gas is bubbled into them or the preparations are (vigorously) beaten, shaken, sprayed or stirred into the gas atmosphere in question. In foams produced in this way, the gas bubbles may be present in (arbitrary) distribution in one (or more) liquid phase(s), where the foams do not necessarily have to have the appearance of a foam in macroscopic terms.

From foamable cosmetic or dermatological preparations according to the invention it is possible to prepare, by foaming, macroscopically visibly dispersed systems of gases dispersed in liquids. The foam character can, however, for example,

be visible also only under a (light) microscope. Moreover, the foaming of the foamable preparations according to the invention is, particularly when the gas bubbles are too small to be recognized under a light microscope, also recognizable from a sharp increase in volume of the system.

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The preparations according to the invention are entirely satisfactory preparations in every respect. It was particularly surprising that the foams produced from the foamable preparations according to the invention are extraordinarily stable, even in cases of an unusually high gas volume. Accordingly, for the purposes of the present invention they are very suitable for use as bases for product forms having diverse use purposes.

The preparations according to the invention and foams obtainable therefrom have very good sensory properties, such as, for example, distributability on the skin or the ability to be absorbed into the skin, and are, moreover, characterized by above-average skincare.

Finely bubbled, rich foams with excellent cosmetic elegance are obtainable from compositions according to the invention. In addition, preparations which are particularly well tolerated by the skin are obtainable from compositions according to the invention, it being possible for valuable ingredients to be distributed particularly well on the skin.

The invention further provides for the use of foamable cosmetic or dermatological preparations which comprise

- I. an emulsifier system which consists of
- A. at least one emulsifier A chosen from the group of wholly neutralized, partially neutralized or unneutralized branched and/or unbranched, saturated and/or unsaturated fatty acids having a chain length of from 10 to 40 carbon atoms,

B. at least one emulsifier B chosen from the group of polyethoxylated fatty acid esters having a chain length of from 10 to 40 carbon atoms and a degree of ethoxylation of from 5 to 100 and

C. at least one coemulsifier C chosen from the group of saturated and/or unsaturated, branched and/or unbranched fatty alcohols having a chain length of from 10 to 40 carbon atoms,

and

II. up to 50% by weight – based on the total weight of the foamable preparation – of a lipid phase which comprises one or more nonpolar lipids having a polarity of at least 30 mN/m

as cosmetic or dermatological bases for gaseous active ingredients.

Detailed Description of the Preferred Embodiments

The emulsifier(s) A is/are preferably chosen from the group of fatty acids which have been wholly or partially neutralized with customary alkalis (such as, for example, sodium hydroxide and/or potassium hydroxide, sodium carbonate and/or potassium carbonate, and mono- and/or triethanolamine). Stearic acid and stearates, isostearic acid and isostearates, palmitic acid and palmitates, and myristic acid and myristates, for example, are particularly advantageous.

The emulsifier(s) B is/are preferably chosen from the following group: PEG-9 stearate, PEG-8 distearate, PEG-20 stearate, PEG-8 stearate, PEG-8 oleate, PEG-25 glyceryl trioleate, PEG-40 sorbitan lanolate, PEG-15 glyceryl ricinoleate, PEG-20 glyceryl stearate, PEG-20 glyceryl isostearate, PEG-20 glyceryl oleate, PEG-20 stearate, PEG-20 methylglucose sesquistearate, PEG-30 glyceryl isostearate, PEG-20 glyceryl laurate, PEG-30 stearate, PEG-30 glyceryl stearate, PEG-40 stearate, PEG-30 glyceryl laurate, PEG-50 stearate, PEG-100 stearate, PEG-150 laurate. Particularly advantageous are, for example, polyethoxylated stearic esters.

The coemulsifier(s) C is/are preferably chosen according to the invention from the following group: butyloctanol, butyldecanol, hexyloctanol, hexyldecanol, octyldodecanol, behenyl alcohol ($C_{22}H_{45}OH$), cetearyl alcohol [a mixture of cetyl alcohol ($C_{16}H_{33}OH$) and stearyl alcohol ($C_{18}H_{37}OH$)], lanolin alcohols (wool wax alcohols, which are the unsaponifiable alcohol fraction of wool wax which is obtained following the saponification of wool wax). Particular preference is given to cetyl alcohol and cetylstearyl alcohol.

It is advantageous according to the invention to choose the weight ratios of emulsifier A to emulsifier B to coemulsifier C (A : B : C) as a : b : c, where a, b and c, independently of one another, may be rational numbers from 1 to 5, preferably from 1 to 3. Particular preference is given to a weight ratio of approximately 1 : 1 : 1.

It is advantageous for the purposes of the present invention to choose the total amount of emulsifiers A and B and of coemulsifier C from the range from 1 to 20% by weight, advantageously from 2 to 15% by weight, in particular from 5 to 10% by weight, in each case based on the total weight of the formulation.

The foamable cosmetic or dermatological compositions according to the invention can, for example, be dispensed from aerosol containers and thereby be foamed. Aerosol containers according to the invention are spray devices with a filling of the liquid or slurry-like substances which are under the pressure of a propellant (pressurized gas or aerosol packings). Such containers can be fitted with valves of very diverse construction which permit removal of the contents in the form of a foam.

Suitable pressurized gas containers for the purposes of the present invention are primarily cylindrical vessels made of metal (aluminum, tinplate, contents < 1 000 ml), protected or shatter resistant glass or plastic (contents < 220 ml) or shattering glass or plastic (contents < 150 ml), in the choice of which compressive strength and breaking

strength, corrosion resistance, ease of filling, or ease of sterilizing etc., but also esthetic aspects, handlability, printing properties etc. play a role. The maximum permissible operating pressure of spray cans made of metal at 50°C is 12 bar and the maximum fill volume at this temperature is about 90% of the total volume. For glass and plastic
5 cans, the values for the operating pressure are lower and dependent on the size of the container and the propellant (whether liquefied, compressed or dissolved gas).

For the purposes of the present invention, cans made of tinplate, aluminum and glass are particularly advantageous. For reasons of corrosion protection, metal cans
10 can be coated on the inside (silver- or gold-coated), for which purpose all standard commercial internal protective coatings are suitable. For the purposes of the present invention, preference is given to polyester, epoxyphenol and polyamide-imide coatings. Film laminates made of polyethylene (PE), polypropylene (PP) and/or polyethylene terephthalate (PET) on the inside of the cans are also advantageous, in particular for
15 cans made of tinplate.

The pressurized gas containers are usually single-part or two-part, but in most cases three-part cylindrical, conical or differently shaped. If plastics are used as the spray container material, then these should be resistant to chemicals and the
20 sterilization temperature, gas-tight, impact-resistant and stable to internal pressures in excess of 12 bar. In principle, polyacetals and polyamides are suitable for spray container purposes.

The internal construction of the spray cans and the valve construction are many
25 and varied, depending on the intended use and the physical nature of the ingredient - e.g. whether it is in the form of a two-phase or three-phase system - and can be determined by the person skilled in the art by simple trial and error without inventive activity. For suitable variants, reference may be made to the "Aerosol Technologie

Handbuch der Aerosol-Verpackung" [Aerosol Technology handbook of Aerosol Packaging] (Wolfgang Tauscher, Melcher Verlag GmbH Heidelberg/Munich, 1996).

Valves which are advantageous according to the invention can be designed with or without riser tube. The individual components from which valves according to the invention are usually constructed preferably consist of the following materials:

Disc: tinplate: uncoated, gold- or clear-coated, film-laminated (PE, PP or PET)
aluminum: uncoated, silver- or gold-coated, different coating variants, Stoner-
Mudge design

Seal: natural or synthetic elastomers or thermoplastic (sleeve gaskets, film-lined made of PE or PP) internal and external seals, e.g. made of perbunan, buna, neoprene, butyl, CLB, LDPE, viton, EPDM, chlorobutyl, bromobutyl and/or diverse compounds

Cone: PA, POM, brass and diverse special materials,
standard bores (e.g.: 0.25 to 0.70 mm or 2×0.45 to 2×1.00 mm),
various shaft diameters

Spring: metal, particularly preferably V2A, stainless steel;
plastic and also elastomer

Casing: standard and impact
VPH bores, RPT bores or slit for overhead applications
materials: e.g. polyacetal, PA, PE, POM and the like

Riser tube: plastic (polymer resin), e.g. PE, PP, PA or polycarbonate

Advantageous spray heads for the purposes of the present invention are, for example, foaming heads for upright use (hold can vertically) or foam heads for overhead application using one or more channels.

5 Suitable propellants are the customary "classic" readily volatile, liquefied propellant gases, such as, for example, dimethyl ether (DME) and/or linear or branched-chain hydrocarbons with two to five carbon atoms (such as, in particular, ethane, propane, butane, isobutane and/or pentane), which can be used on their own or in a mixture with one another.

10 Compressed air, and also other gases which are under pressure, such as air, oxygen, nitrogen, hydrogen, helium, krypton, xenon, radon, argon, nitrous oxide (N₂O) and carbon dioxide (CO₂) are also advantageously to be used for the purposes of the present invention as propellant gases (either on their own or in any desired mixtures
15 with one another).

 The person skilled in the art is naturally aware that there are other propellant gases which are nontoxic per se and which would be suitable in principle for realizing the present invention in the form of aerosol preparations, but which nevertheless should
20 be omitted due to an unacceptable impact on the environment or other accompanying circumstances, in particular halogenated (substituted by fluorine, chlorine, bromine, iodine and/or astatine) hydrocarbons, such as, for example, fluorocarbons and chlorofluorocarbons (CFCs).

25 For the purposes of the present invention, said gases can in each case be used individually or in any desired mixtures with one another.

 For the purposes of the present invention, the volume fraction of propellant gas is advantageously chosen from the range from 0.1 to 30% by volume, based on the

total volume of filler material and propellant gas (corresponding to a volume fraction of from 70 to 99.9% by volume of filler material).

A particularly preferred propellant gas for the purposes of the present invention is carbon dioxide. Foams obtainable from preparations according to the invention which comprise carbon dioxide as one or the active ingredient are particularly advantageous.

Particularly advantageous, finely creamy and rich foams are obtainable when the preparations according to the invention are foamed using linear or branched-chain, halogenated or nonhalogenated hydrocarbons. Very particularly advantageous foams are obtainable by foaming the preparations according to the invention with carbon dioxide, oxygen, compressed air and/or nitrogen.

It may be advantageous, although it is not necessary, for the formulations according to the present invention to comprise further emulsifiers. Preference is given to using those emulsifiers which are suitable for the preparation of W/O emulsions, it being possible for these to be present either individually or else in any combinations with one another.

The further emulsifier(s) is/are advantageously chosen from the group which comprises the following compounds:

polyglyceryl-2 dipolyhydroxystearate, PEG-30 dipolyhydroxystearate, cetyldimethicone copolyol, glycol distearate, glycol dilaurate, diethylene glycoldilaurate, sorbitan trioleate, glycol oleate, glyceryl dilaurate, sorbitan tristearate, propylene glycol stearate, propylene glycol laurate, propylene glycol distearate, sucrose distearate, PEG-3 castor oil, pentaerythrityl monostearate, pentaerythrityl sesquioleate, glyceryl oleate, glyceryl stearate, glyceryl diisostearate, pentaerythrityl monooleate, sorbitan sesquioleate, isostearyl diglycerol succinate, glyceryl caprate, palm glycerides, cholesterol, lanolin, glyceryl oleate (with 40% monoester), polyglyceryl-2 sesquiisostearate, polyglyceryl-2

sesquioleate, PEG-20 sorbitan beeswax, sorbitan oleate, sorbitan isostearate, trioylel
 phosphate, glyceryl stearate and ceteareth-20 (Teginacid from Th. Goldschmidt),
 sorbitan stearate, PEG-7 hydrogenated castor oil, PEG-5-soyasterol, PEG-6 sorbitan
 beeswax, glyceryl stearate SE, methylglucose sesquisteates, PEG-10 hydrogenated
 5 castor oil, sorbitan palmitate, PEG-22/dodecyl glycol copolymer, polyglyceryl-2 PEG-4
 stearate, sorbitan laurate, PEG-4 laurate, polysorbate 61, polysorbate 81, polysorbate
 65, polysorbate 80, triceteareth-4 phosphate, triceteareth-4 phosphate and sodium
 C₁₄₋₁₇ alkyl sec sulfonate (Hostacerin CG from Hoechst), glyceryl stearate and PEG-100
 10 stearates (Arlacel 165 from ICI), polysorbate 85, trilaureth-4 phosphate, PEG-35 castor
 oil, sucrose stearate, trioeth-8 phosphate, C₁₂₋₁₅ pareth-12, PEG-40 hydrogenated
 castor oil, PEG-16 soyasterol, polysorbate 80, polysorbate 20, PEG-40 castor oil,
 sodium cetearyl sulfate, lecithin, laureth-4 phosphate, propylene glycol stearate SE,
 PEG-25 hydrogenated castor oil, PEG-54 hydrogenated castor oil, glyceryl stearate SE,
 PEG-6 caprylic/capric glycerides, glyceryl oleate and propylene glycol, glyceryl lanolate,
 15 polysorbate 60, glyceryl myristate, glyceryl isostearate and polyglyceryl-3 oleate,
 glyceryl laurate, PEG-40 sorbitan peroleate, laureth-4, glycerol monostearate, isostearyl
 glyceryl ether, cetearyl alcohol and sodium cetearyl sulfate, PEG-22 dodecyl glycol
 copolymer, polyglyceryl-2 PEG-4 stearate, pentaerythrityl isostearate, polyglyceryl-3-
 diisostearate, sorbitan oleate and hydrogenated castor oil and Cera alba and stearic
 20 acid, sodium dihydroxycetyl phosphate and isopropyl hydroxycetyl ether, methylglucose
 sesquisteate, methylglucose dioleate, sorbitan oleate and PEG-2 hydrogenated
 castor oil and ozokerite and hydrogenated castor oil, PEG-2 hydrogenated castor oil,
 PEG-45/dodecyl glycol copolymer, methoxy PEG-22/dodecyl glycol copolymer,
 hydrogenated cocoglycerides, polyglyceryl-4 isostearate, PEG-40 sorbitan peroleate,
 25 PEG-40 sorbitan perisostearate, PEG-8 beeswax, laurylmethicone copolyol,
 polyglyceryl-2 laurate, stearamidopropyl PG dimonium chloride phosphate, PEG-7
 hydrogenated castor oil, triethyl citrate, glyceryl stearate citrate, cetyl phosphate,
 polyglycerol methylglucose distearate, poloxamer 101, potassium cetyl phosphate,
 glyceryl isostearate, polyglyceryl-3 diisostearates.

Preferably, for the purposes of the present invention, the further emulsifier(s) is/are chosen from the group of hydrophilic emulsifiers. According to the invention, particular preference is given to mono-, di- and tri-fatty acid esters of sorbitol.

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The total amount of further emulsifiers is, according to the invention, advantageously chosen to be less than 5% by weight, based on the total weight of the formulation.

10 The list of given further emulsifiers which can be used for the purposes of the present invention is not of course intended to be limiting.

Particularly advantageous self-foaming and/or foamable preparations for the purposes of the present invention are free from mono- or diglyceryl fatty acid esters.

15 Particular preference is given to preparations according to the invention which comprise no glyceryl stearate, glyceryl isostearate, glyceryl diisostearate, glyceryl oleate, glyceryl palmitate, glyceryl myristate, glyceryl lanolate and/or glyceryl laurate.

20 The oil phase of the preparations according to the invention is advantageously chosen from the group of nonpolar lipids having a polarity ≥ 30 mN/m. Particularly advantageous nonpolar lipids for the purposes of the present invention are those listed below.

INCI name	Polarity
	mN/m
Cycloparaffin	49.1
Polydecene	46.7
Hydrogenated polyisobutene	44.7

INCI name	Polarity
	mN/m
Polydimethylsiloxane	46.5
Isohexadecane	43.8
Mineral oil	43.7
Mineral oil	43.7
Polydimethylsiloxane	42.4
Isoeicosane	41.9
Polydimethylsiloxane	40.9
Ethoxydiglycol oleate	40.5
Decyl olivate	40.3
Dioctylcyclohexane	39.0
Mineral oil	38.3
Paraffinum liquidum	37.6
Isocetyl palmitate	36.2
Cyclopentasiloxane	32.3
Octyl isostearate	31.6
Dicaprylyl carbonate	31.7
Trimethylhexyl isononanoate	31.1
2-Ethylhexyl isononanoate	31.0
Octyl cocoate	30.0

The content of the lipid phase is advantageously chosen to be less than 50% by weight, preferably between 1 and 40% by weight, particularly preferably between 5 and 15% by weight, in each case based on the total weight of the foamable preparation. It may also be advantageous, although it is not obligatory, for the lipid phase to comprise up to 60% by weight, based on the total weight of the lipid phase, of polar lipids (having

a polarity of ≤ 20 mN/m) and/or medium-polarity lipids (having a polarity of from 20 to 30 mN/m) and/or cyclic or linear silicone oils and/or waxes.

5 For the purposes of the present invention, particularly advantageous polar lipids are all native lipids, such as, for example, olive oil, sunflower oil, soybean oil, groundnut oil, rapeseed oil, almond oil, palm oil, coconut oil, castor oil, wheat germ oil, grapeseed oil, thistle oil, evening primrose oil, macadamia nut oil, corn oil, avocado oil and the like and those listed below.

INCI name	Polarity
	mN/m
Butyl decanol (+) hexyl octanol (+) Hexyl decanol (+) butyl octanol	19.8
Tridecyl stearate(+) tridecyl trimellitate(+) dipentaerythrityl hexacaprylate/hexacaprate	19.4
Ricinus communis/castor oil	19.2
Propylene glycol dicaprylate/dicaprate	18.7
Butyl octanol	17.4
Stearyl heptanoate	17.8
Persa gratissima/avocado oil	14.5
Dibutyl adipate	14.3
PEG 2 Diethylene hexanoate	10.1
C ₁₂₋₁₃ Alkyl lactate	8.8
Diethylene glycol dioctanoate/(diisononanoate	8.6
Di-C _{12/13} Alkyl tartrate	7.1
Propylene glycol monoisostearate	6.2
Cocoglycerides	5.1
Triisostearin	2.4

Particularly advantageous medium-polar lipids for the purposes of the present invention are those listed below

INCI name	Polarity (Water)
	mN/m
Dicaprylyl ether	30.9
Dihexyl carbonate	30.9
Polydecene	30.1
Isodecyl neopentanoate	29.9
Isohexyl decanoate	29.7
Isodecyl octanoate	29.6
Dihexyl ether	29.2
Isodecyl 3,5,5 trimethyl hexanoate	29.1
Cetearyl isononanoate	28.6
Isopropyl palmitate	28.8
Cyclomethicone	28.5
Cyclopolydimethylsiloxane	28.5
Jojoba oil, Buxus chinensis	26.2
Dimethicone	26.9
2- Ethylhexanoic acid 3,5,5 trimethyl ester	26.2
Open	25.3
Octyldodecanol	24.8
Hexyl decanol	24.3
Isotridecyl 3,5,5 trimethylhexanonanoate	24.5
Hexyldecanol (+) hexyldecyl laurate	24.3
Octyl palmitate	23.1
Octyldodeceyl myristate	22.1
Macadamia nut oil, Macadamia ternifolia	22.1
Phenyl trimethicone	22.7

INCI name	Polarity (Water)
	mN/m
Butyl octanoic acid	22.1
Isopropyl stearate	21.9
C12-15 Alkyl benzoate	21.8
Butylene glycol Caprylate/caprates	21.5
Caprylic/capric triglyceride	21.3
Tricaprylin	20.2
PEG " Diethylhexanoate/diisononanoate/ethylhexyl isononanoate	20.1

Of the hydrocarbons, paraffin oil in particular and also further hydrogenated polyolefins, such as hydrogenated polyisobutene, squalane and squalene are to be used advantageously for the purposes of the present invention.

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The cosmetic and/or dermatological preparations according to the invention and foams obtainable therefrom can have the customary composition. For the purposes of the present invention, skincare preparations are particularly advantageous: they can be used for cosmetic and/or dermatological light protection, and also for the treatment of the skin and/or of the hair and as make-up products in decorative cosmetics. A further advantageous embodiment of the present invention consists in aftersun products.

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Corresponding to their structure, cosmetic or topical dermatological compositions can be used, for the purposes of the present invention, for example as skin protection cream, day cream or night cream etc. It may be possible and advantageous to use the compositions according to the invention as a base for pharmaceutical formulations.

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Just as emulsions of liquid and solid consistency are used as cosmetic cleansing lotions or cleansing creams, the foams obtainable from the preparations according to the invention can also be "cleansing foams" which can be used, for example, for the removal of make-up or as a mild washing foam, possibly also for bad skin. Such
5 cleansing foams can advantageously also be used as "rinse-off" preparations, which are rinsed from the skin following application.

Foams obtainable from cosmetic and/or dermatological preparations according to the invention can also advantageously be in the form of a foam for care of the hair or
10 of the scalp, in particular a foam for arranging the hair, a foam which is used when blow-drying the hair, a styling foam and treatment foam.

For use, the cosmetic and dermatological preparations according to the invention and/or foams obtainable therefrom are applied to the skin and/or the hair in an
15 adequate amount in the manner customary for cosmetics.

The cosmetic and dermatological preparations according to the invention can comprise cosmetic auxiliaries, as are customarily used in such preparations, e.g. preservatives, preservative assistants, bactericides, perfumes, dyes, pigments which
20 have a coloring action, moisturizers and/or humectants, fillers which improve the feel on the skin, fats, oils, waxes or other customary constituents of a cosmetic or dermatological formulation, such as alcohols, polyols, polymers, foam stabilizers, electrolytes, organic solvents or silicone derivatives.

25 Advantageous preservatives for the purposes of the present invention are, for example, formaldehyde donors (such as, for example, DMDM hydantoin), iodopropylbutyl carbamates (e.g. those available under the trade names Koncyl-L, Koncyl-S and Konkaben LMB from Lonza), parabens, phenoxyethanol, ethanol, benzoic acid and the like. According to the invention, the preservative system

usually also advantageously comprises preservative assistants, such as, for example, octoxyglycerol, glycine soybean etc.

Particularly advantageous preparations are also obtained if antioxidants are used as additives or active ingredients. According to the invention, the preparations advantageously comprise one or more antioxidants. Favorable, but nevertheless optional antioxidants which may be used are all antioxidants customary or suitable for cosmetic and/or dermatological applications.

The antioxidants are advantageously chosen from the group consisting of amino acids (e.g. glycine, histidine, tyrosine, tryptophan) and derivatives thereof, imidazoles (e.g. urocanic acid) and derivatives thereof, peptides such as D,L-carnosine, D-carnosine, L-carnosine and derivatives thereof (e.g. anserine), carotenoids, carotenes (e.g. α -carotene, β -carotene, lycopene) and derivatives thereof, lipoic acid and derivatives thereof (e.g. dihydrolipoic acid), aurothioglucose, propylthiouracil and other thiols (e.g. thioredoxin, glutathione, cysteine, cystine, cystamine and the glycosyl, N-acetyl, methyl, ethyl, propyl, amyl, butyl and lauryl, palmitoyl, oleyl, γ -linoleyl, cholesteryl and glyceryl esters thereof) and salts thereof, dilauryl thiodipropionate, distearyl thiodipropionate, thiodipropionic acid and derivatives thereof (esters, ethers, peptides, lipids, nucleotides, nucleosides and salts) and sulfoximine compounds (e.g. buthionine sulfoximines, homocysteine sulfoximine, buthionine sulfones, penta-, hexa-, heptathionine sulfoximine) in very low tolerated doses (e.g. pmol to μ mol/kg), and also (metal) chelating agents (e.g. α -hydroxy fatty acids, palmitic acid, phytic acid, lactoferrin), α -hydroxy acids (e.g. citric acid, lactic acid, malic acid), humic acid, bile acid, bile extracts, bilirubin, biliverdin, EDTA, EGTA and derivatives thereof, unsaturated fatty acids and derivatives thereof (e.g. γ -linolenic acid, linoleic acid, oleic acid), folic acid and derivatives thereof, ubiquinone and ubiquinol and derivatives thereof, vitamin C and derivatives (e.g. ascorbyl palmitate, Mg ascorbyl phosphate, ascorbyl acetate), tocopherols and derivatives (e.g. vitamin E acetate), vitamin A and

derivatives (vitamin A palmitate) and coniferyl benzoate of benzoin resin, rutinic acid and derivatives thereof, ferulic acid and derivatives thereof, butylhydroxytoluene, butylhydroxyanisole, nordihydroguaiacic acid, nordihydroguaiaretic acid, trihydroxybutyrophenone, uric acid and derivatives thereof, mannose and derivatives thereof, zinc and derivatives thereof (e.g. ZnO, ZnSO₄), selenium and derivatives thereof (e.g. selenomethionine), stilbenes and derivatives thereof (e.g. stilbene oxide, trans-stilbene oxide) and the derivatives (salts, esters, ethers, sugars, nucleotides, nucleosides, peptides and lipids) of these listed active ingredients which are suitable according to the invention.

10

For the purposes of the present invention, water-soluble antioxidants, such as, for example, vitamins, e.g. ascorbic acid and derivatives thereof, can be used particularly advantageously.

15 A surprising property of the preparations according to the invention is that they are very good vehicles for cosmetic or dermatological active ingredients into the skin, preferred active ingredients being antioxidants which can protect the skin against oxidative stress. Preferred antioxidants here are vitamin E and derivatives thereof, and vitamin A and derivatives thereof.

20

The amount of antioxidants (one or more compounds) in the preparations is preferably 0.001 to 30% by weight, particularly preferably 0.05 to 20% by weight, in particular 0.1 to 10% by weight, based on the total weight of the preparation.

25 If vitamin E and/or derivatives thereof are the antioxidant(s), it is advantageous to choose their respective concentrations from the range from 0.001 to 10% by weight, based on the total weight of the formulation.

If vitamin A or vitamin A derivatives, or carotenes or derivatives thereof are the antioxidant(s), it is advantageous to choose their respective concentrations from the range from 0.001 to 10% by weight, based on the total weight of the formulation.

- 5 The active ingredients (one or more compounds) can also very advantageously be chosen according to the invention from the group of lipophilic active ingredients, in particular from the following group:
- acetylsalicylic acid, atropine, azulene, hydrocortisone and derivatives thereof, e.g. hydrocortisone-17 valerate, vitamins of the B and D series, very favorably vitamin B₁,
 10 vitamin B₁₂ and vitamin D₁, but also bisabolol, unsaturated fatty acids, namely the essential fatty acids (often also called vitamin F), in particular gamma-linolenic acid, oleic acid, eicosapentaenoic acid, docosahexaenoic acid and derivatives thereof, chloroamphenicol, caffeine, prostaglandins, thymol, camphor, extracts or other products of a vegetable and animal origin, e.g. evening primrose oil, borage oil or currant seed
 15 oil, fish oils, cod-liver oil and also ceramides and ceramide-like compounds, etc.

It is also advantageous to choose the active ingredients from the group of refatting substances, for example purcellin oil, Eucerit[®] and Neocerit[®].

- 20 The active ingredient(s) is/are also particularly advantageously chosen from the group of NO synthase inhibitors, particularly if the preparations according to the invention are to be used for the treatment and prophylaxis of the symptoms of intrinsic and/or extrinsic skin aging and for the treatment and prophylaxis of the harmful effects of ultraviolet radiation on the skin.

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A preferred NO synthase inhibitor is nitroarginine.

The active ingredient(s) is/are also advantageously chosen from the group which includes catechins and bile esters of catechins and aqueous or organic extracts from

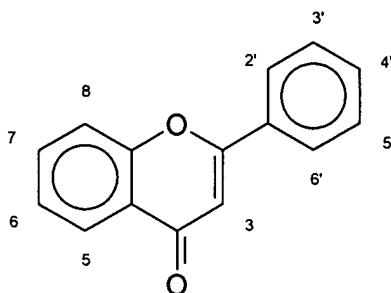
plants or parts of plants which have a content of catechins or bile esters of catechins, such as, for example, the leaves of the Theaceae plant family, in particular of the species *Camellia sinensis* (green tea). Particularly advantageous are typical ingredients thereof (such as e.g. polyphenols or catechins, caffeine, vitamins, sugars, minerals, amino acids, lipids).

Catechins are a group of compounds which are to be regarded as hydrogenated flavones or anthocyanidines and are derivatives of "catechin" (catechol, 3,3',4',5,7-flavanpentaol, 2-(3,4-dihydroxyphenyl)chroman-3,5,7-triol). Epicatechin ((2R,3R)-3,3',4',5,7-flavanpentaol) is also an advantageous active ingredient for the purposes of the present invention.

Also advantageous are plant extracts with a content of catechins, in particular extracts of green tea, such as e.g. extracts from leaves of plants of the species *Camellia spec.*, very particularly the types of tea *Camellia sinensis*, *C. assamica*, *C. taliensis* and *C. irrawadiensis* and hybrids of these with, for example, *Camellia japonica*.

Preferred active ingredients are also polyphenols or catechins from the group (-)-catechin, (+)-catechin, (-)-catechin gallate, (-)-gallocatechin gallate, (+)-epicatechin, (-)-epicatechin, (-)-epicatechin gallate, (-)-epigallocatechin and (-)-epigallocatechin gallate.

Flavone and its derivatives (also often collectively called "flavones") are also advantageous active ingredients for the purposes of the present invention. They are characterized by the following basic structure (substitution positions are shown):



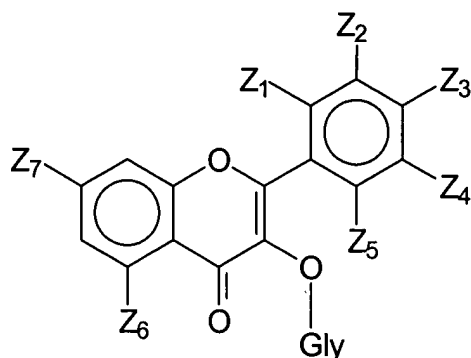
Some of the more important flavones which can also preferably be used in preparations according to the invention are given in the table below:

	OH substitution positions							
	3	5	7	8	2'	3'	4'	5'
Flavone	-	-	-	-	-	-	-	-
Flavonol	+	-	-	-	-	-	-	-
Chrysin	-	+	+	-	-	-	-	-
Galangin	+	+	+	-	-	-	-	-
Apigenin	-	+	+	-	-	-	+	-
Fisetin	+	-	+	-	-	+	+	-
Luteolin	-	+	+	-	-	+	+	-
Kaempferol	+	+	+	-	-	-	+	-
Quercetin	+	+	+	-	-	+	+	-
Morin	+	+	+	-	+	-	+	-
Robinetin	+	-	+	-	-	+	+	+
Gossypetin	+	+	+	+	-	+	+	-
Myricetin	+	+	+	-	-	+	+	+

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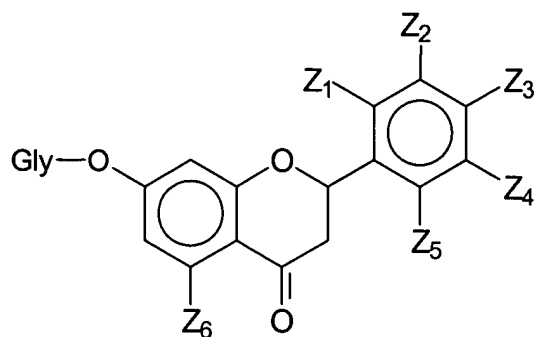
In nature, flavones are usually in glycosylated form.

According to the invention, the flavonoids are preferably chosen from the group of substances of the generic structural formula



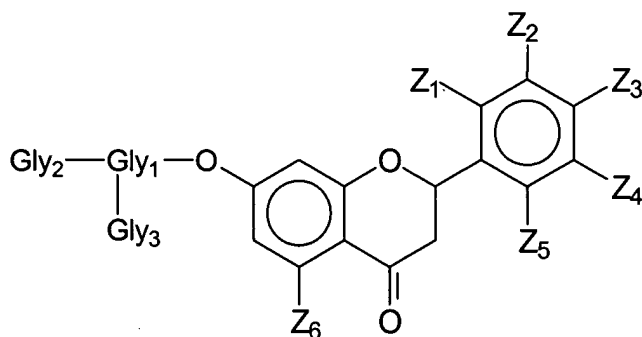
where Z_1 to Z_7 , independently of one another, are chosen from the group consisting of H, OH, alkoxy and hydroxyalkoxy, where the alkoxy and hydroxyalkoxy groups can be branched or unbranched and have 1 to 18 carbon atoms, and where Gly is chosen from the group of mono- and oligoglycoside radicals.

According to the invention, the flavonoids can however, also advantageously be chosen from the group of substances of the generic structural formula



where Z_1 to Z_6 , independently of one another, are chosen from the group consisting of H, OH, alkoxy and hydroxyalkoxy, where the alkoxy and hydroxyalkoxy groups can be branched or unbranched and have 1 to 18 carbon atoms, and where Gly is chosen from the group of mono and oligoglycoside radicals.

Preferably, such structures can be chosen from the group of substances of the generic structural formula



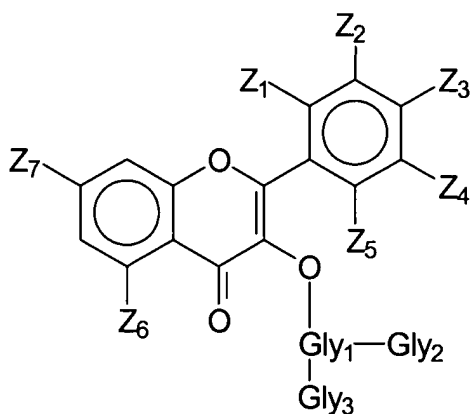
where Gly₁, Gly₂ and Gly₃, independently of one another, are monoglycoside radicals. Gly₂ and Gly₃ can also, individually or together, represent saturations by hydrogen atoms.

5

Preferably, Gly₁, Gly₂ and Gly₃, independently of one another, are chosen from the group of hexosyl radicals, in particular of rhamnosyl radicals and glucosyl radicals. However, other hexosyl radicals, for example allosyl, altrosyl, galactosyl, gulosyl, idosyl, mannosyl and talosyl, can also be used advantageously in some circumstances. It may also be advantageous according to the invention to use pentosyl radicals.

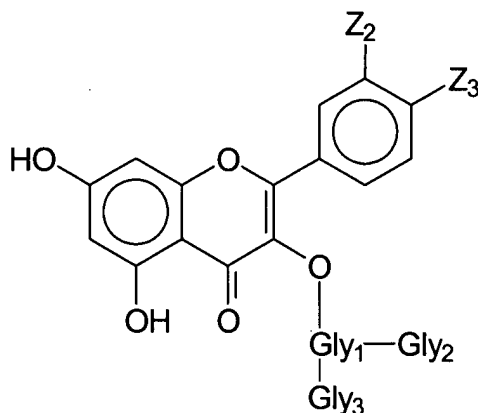
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Z₁ to Z₅ are, independently of one another, advantageously chosen from the group consisting of H, OH, methoxy, ethoxy and 2-hydroxyethoxy, and the flavone glycosides have the structure



15

The flavone glycosides according to the invention are particularly advantageously chosen from the group given by the following structure:



where Gly₁, Gly₂ and Gly₃, independently of one another, are monoglycoside radicals.

5 Gly₂ and Gly₃ can also, individually or together, represent saturations by hydrogen atoms.

Preferably, Gly₁, Gly₂ and Gly₃, independently of one another, are chosen from the group of hexosyl radicals, in particular of rhamnosyl radicals and glucosyl radicals.

10 However, other hexosyl radicals, for example allosyl, altrosyl, galactosyl, gulosyl, idosyl, mannosyl and talosyl, can also advantageously be used in some circumstances. It may also be advantageous according to the invention to use pentosyl radicals.

For the purposes of the present invention, it is particularly advantageous to
15 choose the flavone glucoside(s) from the group consisting of α -glucosylrutin, α -glucosylmyricetin, α -glucosylisoquercitrin, α -glucosylisoquercetin and α -glucosylquercitrin.

Particular preference is given, according to the invention, to α -glucosylrutin.

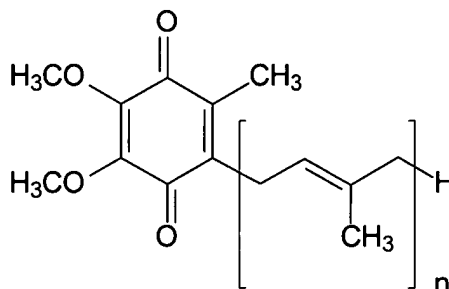
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Also advantageous according to the invention are naringin (aurantin, naringenin-7-rhamnoglucoside), hesperidin (3',5,7-trihydroxy-4'-methoxyflavanone-7-rutinoside,

hesperidoside, hesperetin-7-O-rutinoside), rutin (3,3',4',5,7-pentahydroxyflavone-3-rutinoside, quercetin-3-rutinoside, sophorin, birutan, rutabion, taurutin, phytomelin, melin), troxerutin (3,5-dihydroxy-3',4',7-tris(2-hydroxyethoxy)flavone-3-(6-O-(6-deoxy- α -L-mannopyranosyl)- β -D-glucopyranoside)), monoxerutin (3,3',4',5-tetrahydroxy-7-(2-hydroxyethoxy)flavone-3-(6-O-(6-deoxy- α -L-mannopyranosyl)- β -D-glucopyranoside)), dihydrorobinetin (3,3',4',5',7-pentahydroxyflavanone), taxifolin (3,3',4',5,7-pentahydroxyflavanone), eriodictyol-7-glucoside (3',4',5,7-tetrahydroxyflavanone-7 glucoside), flavanomarein (3',4',7,8-tetrahydroxyflavanone-7 glucoside) and isoquercetin (3,3',4',5,7-pentahydroxyflavanone-3-(β -D-glucopyranoside).

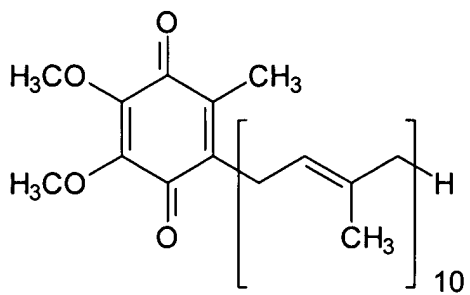
It is also advantageous to choose the active ingredient(s) from the group of ubiquinones and plastoquinones.

Ubiquinones are distinguished by the structural formula

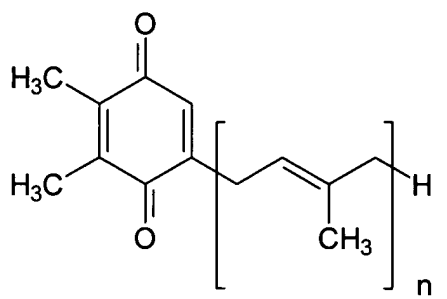


and are the most widespread and thus the most investigated bioquinones. Ubiquinones are referred to depending on the number of isoprene units linked in the side chain as Q-1, Q-2, Q-3 etc., or depending on the number of carbon atoms, as U-5, U-10, U-15 etc. They preferably appear with certain chain lengths, e.g. in some microorganisms and yeasts where $n=6$. In most mammals including man, Q10 predominates.

Coenzyme Q10 is particularly advantageous and is characterized by the following structural formula:

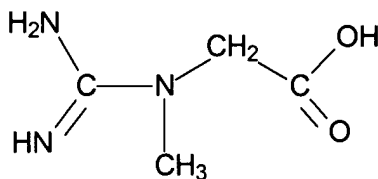


5 Plastoquinones have the general structural formula



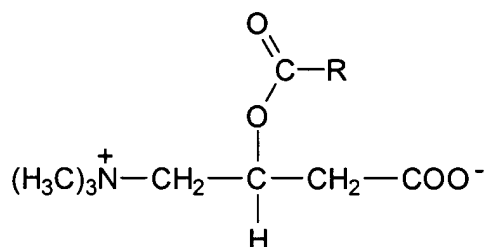
Plastoquinones differ in the number n of isoprene radicals and are referred to accordingly, e.g. PQ-9 ($n=9$). In addition, other plastoquinones with varying substituents on the quinone ring exist.

10 Creatine and/or creatine derivatives are preferred active ingredients for the purposes of the present invention. Creatine is characterized by the following structure:



15 Preferred derivatives are creatine phosphate and creatine sulfate, creatine acetate, creatine ascorbate and the derivatives esterified at the carboxyl group with mono- or polyfunctional alcohols.

A further advantageous active ingredient is L-carnitine [3-hydroxy-4-(trimethylammonio)butyrobetaine]. Acylcarnitines which chosen from the group of substances of the following general structural formula



where R is chosen from the group of branched and unbranched alkyl radicals having up to 10 carbon atoms, are advantageous active ingredients for the purposes of the present invention. Preference is given to propionylcarnitine and, in particular, acetylcarnitine. Both enantiomers (D and L form) are to be used advantageously for the purposes of the present invention. It may also be advantageous to use any enantiomer mixtures, for example a racemate of D and L form.

Further advantageous active ingredients are sericoside, pyridoxol, vitamin K, biotin and aroma substances.

The list of said active ingredients and active ingredient combinations which can be used in the preparations according to the invention is, of course, not intended to be limiting. The active ingredients can be used individually or in any combinations with one another.

Skin aging is caused e.g. by endogenous, genetically determined factors. As a result of aging, the epidermis and dermis experience e.g. the following structural damage and functional disorders, which can also be covered by the term "senile xerosis":

a) dryness, roughness and formation of (dryness) wrinkles,

b) itching and

c) reduced refatting by sebaceous glands (e.g. after washing).

Exogenous factors, such as UV light and chemical noxae, can have a cumulative effect and, for example, accelerate or add to the endogenous aging processes. The epidermis and dermis experience, in particular as a result of exogenous factors, e.g. the following structural damage and functional disorders in the skin, which go beyond the degree and quality of the damage in the case of chronological aging:

d) visible vascular dilations (telangiectases, cuperosis);

e) flaccidity and formation of wrinkles;

f) local hyperpigmentation, hypopigmentation and abnormal pigmentation (e.g. age spots) and

g) increased susceptibility to mechanical stress (e.g. cracking).

Surprisingly, selected formulations according to the invention can also have an anti-wrinkle action or considerably increase the action of known anti-wrinkle active ingredients. Accordingly, for the purposes of the invention, formulations are particularly advantageously suitable for the prophylaxis and treatment of cosmetic or dermatological skin changes, as arise, for example, during skin aging. They are also advantageously suitable for combating the development of dry or rough skin.

In a particular embodiment, the present invention thus relates to products for the care of skin aged in a natural manner, and for the treatment of the secondary damage of light aging, in particular the phenomena listed under a) to g).

The water phase of the preparations according to the invention can advantageously comprise customary cosmetic auxiliaries, such as, for example, alcohols, in particular those of low carbon number, preferably ethanol and/or isopropanol, diols or polyols of low carbon number, and ethers thereof, preferably

propylene glycol, glycerol, ethylene glycol, ethylene glycol monoethyl or monobutyl ether, propylene glycol monomethyl, monoethyl or monobutyl ether, diethyleneglycol monomethyl or monoethyl ether and analogous products, polymers, foam stabilizers, electrolytes and moisturizers.

5

Moisturizers is the term used to describe substances or mixtures of substances which, following application or distribution on the surface of the skin, confer on cosmetic or dermatological preparations the property of reducing the moisture loss by the horny layer (also called transepidermal water loss (TEWL)) and/or have a beneficial effect on the hydration of the horny layer.

10

Advantageous moisturizers for the purposes of the present invention are, for example, glycerol, lactic acid, pyrrolidonecarboxylic acid and urea. In addition, it is particularly advantageous to use polymeric moisturizers from the group of polysaccharides which are soluble in water and/or swellable in water and/or gellable using water. Particularly advantageous are, for example, hyaluronic acid, chitosan and/or a fucose-rich polysaccharide which is listed in Chemical Abstracts under the registry number 178463-23-5 and is available, for example, under the name Fucogel®1000 from SOLABIA S.A.

15

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The cosmetic and dermatological preparations according to the invention can comprise dyes and/or color pigments, particularly when they are in the form of decorative cosmetics. The dyes and color pigments can be chosen from the corresponding positive list of the Cosmetics Directive or the EC list of cosmetic colorants. In most cases they are identical to the dyes approved for foods. Advantageous color pigments are, for example, titanium dioxide, mica, iron oxides (e.g. Fe_2O_3 , Fe_3O_4 , $\text{FeO}(\text{OH})$) and/or tin oxide. Advantageous dyes are, for example, carmine, Berlin blue, chrome oxide green, ultramarine blue and/or manganese violet. It is particularly advantageous to choose the dyes and/or color pigments from the

25

following list. The Colour Index Numbers (CIN) are taken from the *Rowe Colour Index, 3rd Edition, Society of Dyers and Colourists, Bradford, England, 1971.*

Chemical or other name	CIN	Color
Pigment Green	10006	green
Acid Green 1	10020	green
2,4-Dinitrohydroxynaphthalene-7-sulfonic acid	10316	yellow
Pigment Yellow 1	11680	yellow
Pigment Yellow 3	11710	yellow
Pigment Orange 1	11725	orange
2,4-Dihydroxyazobenzene	11920	orange
Solvent Red 3	12010	red
1-(2'-Chloro-4'-nitro-1'-phenylazo)-2-hydroxynaphthalene	12085	red
Pigment Red 3	12120	red
Ceres red; Sudan red; Fat Red G	12150	red
Pigment Red 112	12370	red
Pigment Red 7	12420	red
Pigment Brown 1	12480	brown
4-(2'-Methoxy-5'-sulfodiethylamido-1'-phenylazo)-3-hydroxy-5"-chloro-2",4"-dimethoxy-2-naphthanilide	12490	red
Disperse Yellow 16	12700	yellow
1-(4-Sulfo-1-phenylazo)-4-aminobenzene-5-sulfonic acid	13015	yellow
2,4-Dihydroxyazobenzene-4'-sulfonic acid	14270	orange
2-(2,4-Dimethylphenylazo-5-sulfo)-1-hydroxynaphthalene-4-sulfonic acid	14700	red
2-(4-Sulfo-1-naphthylazo)-1-naphthol-4-sulfonic acid	14720	red
2-(6-Sulfo-2,4-xylylazo)-1-naphthol-5-sulfonic acid	14815	red
1-(4'-Sulfophenylazo)-2-hydroxynaphthalene	15510	orange

Chemical or other name	CIN	Color
1-(2-Sulfo-4-chloro-5-carboxy-1-phenylazo)-2-hydroxynaphthalene	15525	red
1-(3-Methylphenylazo-4-sulfo)-2-hydroxynaphthalene	15580	red
1-(4',(8')-Sulfonaphthylazo)-2-hydroxynaphthalene	15620	red
2-Hydroxy-1,2'-azonaphthalene-1'-sulfonic acid	15630	red
3-Hydroxy-4-phenylazo-2-naphthylcarboxylic acid	15800	red
1-(2-Sulfo-4-methyl-1-phenylazo)-2-naphthylcarboxylic acid	15850	red
1-(2-Sulfo-4-methyl-5-chloro-1-phenylazo)-2-hydroxynaphthalene-3-carboxylic acid	15865	red
1-(2-Sulfo-1-naphthylazo)-2-hydroxynaphthalene-3-carboxylic acid	15880	red
1-(3-Sulfo-1-phenylazo)-2-naphthol-6-sulfonic acid	15980	orange
1-(4-Sulfo-1-phenylazo)-2-naphthol-6-sulfonic acid	15985	yellow
Allura Red	16035	red
1-(4-Sulfo-1-naphthylazo)-2-naphthol-3,6-disulfonic acid	16185	red
Acid Orange 10	16230	orange
1-(4-Sulfo-1-naphthylazo)-2-naphthol-6,8-disulfonic acid	16255	red
1-(4-Sulfo-1-naphthylazo)-2-naphthol-3,6,8-trisulfonic acid	16290	red
8-Amino-2-phenylazo-1-naphthol-3,6-disulfonic acid	17200	red
Acid Red 1	18050	red
Acid Red 155	18130	red
Acid Yellow 121	18690	yellow
Acid Red 180	18736	red
Acid Yellow 11	18820	yellow
Acid Yellow 17	18965	yellow
4-(4-Sulfo-1-phenylazo)-1-(4-sulfophenyl)-5-hydroxypyrazolone-3-carboxylic acid	19140	yellow
Pigment Yellow 16	20040	yellow

Chemical or other name	CIN	Color
2,6-(4'-Sulfo-2", 4"-dimethyl)bisphenylazo)-1,3-dihydroxybenzene	20170	orange
Acid Black 1	20470	black
Pigment Yellow 13	21100	yellow
Pigment Yellow 83	21108	yellow
Solvent Yellow	21230	yellow
Acid Red 163	24790	red
Acid Red 73	27290	red
2-[4'-(4"-Sulfo-1"-phenylazo)-7'-sulfo-1'-naphthylazo]-1-hydroxy-7-aminonaphthalene-3,6-disulfonic acid	27755	black
4'-[(4"-Sulfo-1"-phenylazo)-7'-sulfo-1'-naphthylazo]-1-hydroxy-8-acetylaminonaphthalene-3,5-disulfonic acid	28440	black
Direct Orange 34, 39, 44, 46, 60	40215	orange
Food Yellow	40800	orange
trans- β -Apo-8'-carotenaldehyde (C ₃₀)	40820	orange
trans-Apo-8'-carotenic acid (C ₃₀)-ethyl ester	40825	orange
Canthaxanthin	40850	orange
Acid Blue 1	42045	blue
2,4-Disulfo-5-hydroxy-4'-4"-bis(diethylamino)triphenylcarbinol	42051	blue
4-[(4-N-Ethyl-p-sulfobenzylamino)phenyl(4-hydroxy-2-sulfophenyl)(methylene)-1-(N-ethyl-N-p-sulfobenzyl)-2,5-cyclohexadienimine]	42053	green
Acid Blue 7	42080	blue
(N-Ethyl-p-sulfobenzylamino)phenyl(2-sulfophenyl)methylene-(N-ethyl-N-p-sulfobenzyl) $\Delta^{2,5}$ -cyclohexadienimine	42090	blue
Acid Green 9	42100	green
Diethyldisulfobenzyl-di-4-amino-2-chloro-di-2-methyl-fuchsonimmonium	42170	green

Chemical or other name	CIN	Color
Basic Violet 14	42510	violet
Basic Violet 2	42520	violet
2'-Methyl-4'-(N-ethyl-N-m-sulfobenzyl)amino-4''-(N-diethyl)amino-2-methyl-N-ethyl-N-m-sulfobenzylfuchsonimmonium	42735	blue
4'-(N-Dimethyl)amino-4''-(N-phenyl)aminonaphtho-N-dimethyl-fuchsonimmonium	44045	blue
2-Hydroxy-3,6-disulfo-4,4'-bisdimethylaminonaphtho-fuchsonimmonium	44090	green
Acid Red 52	45100	red
3-(2'-Methylphenylamino)-6-(2'-methyl-4'-sulfophenylamino)-9-(2''-carboxyphenyl)xanthenium salt	45190	violet
Acid Red 50	45220	red
Phenyl-2-oxyfluorone-2-carboxylic acid	45350	yellow
4,5-Dibromofluorescein	45370	orange
2,4,5,7-Tetrabromofluorescein	45380	red
Solvent Dye	45396	orange
Acid Red 98	45405	red
3',4',5',6'-Tetrachloro-2,4,5,7-tetrabromofluorescein	45410	red
4,5-Diiodofluorescein	45425	red
2,4,5,7-Tetraiodofluorescein	45430	red
Quinophthalone	47000	yellow
Quinophthalonedisulfonic acid	47005	yellow
Acid Violet 50	50325	violet
Acid Black 2	50420	black
Pigment Violet 23	51319	violet
1,2-Dioxyanthraquinone, calcium-aluminum complex	58000	red
3-Oxypyrene-5,8,10-sulfonic acid	59040	green

Chemical or other name	CIN	Color
1-Hydroxy-4-N-phenylaminoanthraquinone	60724	violet
1-Hydroxy-4-(4'-methylphenylamino)anthraquinone	60725	violet
Acid Violet 23	60730	violet
1,4-Di(4'-methylphenylamino)anthraquinone	61565	green
1,4-Bis(o-sulfo-p-toluidino)anthraquinone	61570	green
Acid Blue 80	61585	blue
Acid Blue 62	62045	blue
N,N'-Dihydro-1,2,1',2'-anthraquinone azine	69800	blue
Vat Blue 6; Pigment Blue 64	69825	blue
Vat Orange 7	71105	orange
Indigo	73000	blue
Indigo-disulfonic acid	73015	blue
4,4'-Dimethyl-6,6'-dichlorothioindigo	73360	red
5,5'-Dichloro-7,7'-dimethylthioindigo	73385	violet
Quinacridone Violet 19	73900	violet
Pigment Red 122	73915	red
Pigment Blue 16	74100	blue
Phthalocyanine	74160	blue
Direct Blue 86	74180	blue
Chlorinated phthalocyanine	74260	green
Natural Yellow 6,19; Natural Red 1	75100	yellow
Bixin, Norbixin	75120	orange
Lycopene	75125	yellow
trans-alpha-, beta- and gamma-carotene	75130	orange
Keto- and/or hydroxyl derivates of carotene	75135	yellow
Guanine or pearlescent agent	75170	white
1,7-Bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione	75300	yellow
Complex salt (Na, Al, Ca) of carminic acid	75470	red

Chemical or other name	CIN	Color
Chlorophyll a and b; copper compounds of chlorophylls and chlorophyllins	75810	green
Aluminum	77000	white
Hydrated alumina	77002	white
Hydrous aluminum silicates	77004	white
Ultramarine	77007	blue
Pigment Red 101 and 102	77015	red
Barium sulfate	77120	white
Bismuth oxychloride and its mixtures with mica	77163	white
Calcium carbonate	77220	white
Calcium sulfate	77231	white
Carbon	77266	black
Pigment black 9	77267	black
Carbo medicinalis vegetabilis	77268:1	black
Chromium oxide	77288	green
Chromium oxide, hydrous	77289	green
Pigment Blue 28, Pigment Green 14	77346	green
Pigment Metal 2	77400	brown
Gold	77480	brown
Iron oxides and hydroxides	77489	orange
Iron oxide	77491	red
Hydrated iron oxide	77492	yellow
Iron oxide	77499	black
Mixtures of iron (II) and iron(III)hexacyanoferrate	77510	blue
Pigment White 18	77713	white
Manganese animonium diphosphate	77742	violet
Manganese phosphate; $\text{Mn}_3(\text{PO}_4)_2 \cdot 7 \text{H}_2\text{O}$	77745	red
Silver	77820	white

Chemical or other name	CIN	Color
Titanium dioxide and its mixtures with mica	77891	white
Zinc oxide	77947	white
6,7-Dimethyl-9-(1'-D-ribityl)isoalloxazine, lactoflavine		yellow
Sugar coloring		brown
Capsanthin, capsorubin		orange
Betanin		red
Benzopyrylium salts, anthocyan		red
Aluminum, zinc, magnesium and calcium stearate		white
Bromothymol blue		blue
Bromocresol green		green
Acid Red 195		red

If the formulations according to the invention are in the form of products, which are intended for use in the facial area, it is favorable to choose one or more substances from the following group as the dye: 2,4-dihydroxyazobenzene, 1-(2'-chloro-4'-nitro-1'-phenylazo)-2-hydroxynaphthalene, Ceres Red, 2-(4-sulfo-1-naphthylazo)-1-naphthol-4-sulfonic acid, calcium salt of 2-hydroxy-1,2'-azonaphthalene-1'-sulfonic acid, calcium and barium salts of 1-(2-sulfo-4-methyl-1-phenylazo)-2-naphthylcarboxylic acid, calcium salt of 1-(2-sulfo-1-naphthylazo)-2-hydroxynaphthalene-3-carboxylic acid, aluminum salt of 1-(4-sulfo-1-phenylazo)-2-naphthol-6-sulfonic acid, aluminum salt of 1-(4-sulfo-1-naphthylazo)-2-naphthol-3,6-disulfonic acid, 1-(4-sulfo-1-naphthylazo)-2-naphthol-6,8-disulfonic acid, aluminum salt of 4-(4-sulfo-1-phenylazo)-1-(4-sulfophenyl)-5-hydroxypyrazolone-3-carboxylic acid, aluminum and zirconium salts of 4,5-dibromofluorescein, aluminum and zirconium salts of 2,4,5,7-tetrabromofluorescein, 3',4',5',6'-tetrachloro-2,4,5,7-tetrabromofluorescein and its aluminum salt, aluminum salt of 2,4,5,7-tetraiodofluorescein, aluminum salt of quinophthalone disulfonic acid, aluminum salt of indigo disulfonic acid, red and black iron oxide (CIN: 77 491 (red) and 77 499 (black)),

iron oxide hydrate (CIN: 77 492), manganese ammonium diphosphate and titanium dioxide.

Also advantageous are oil-soluble natural dyes, such as, for example, paprika
5 extracts, β -carotene or cochénille.

Also advantageous for the purposes of the present invention are formulations with a content of pearlescent pigments. Preference is given in particular to the types of pearlescent pigments listed below:

- 10 1. Natural pearlescent pigments, such as, for example
 - “pearl essence” (guanine/hypoxanthin mixed crystals from fish scales) and
 - “mother of pearl” (ground mussel shells)
2. Monocrystalline pearlescent pigments, such as, for example, bismuth oxychloride (BiOCl)
- 15 3. Layer-substrate pigments: e.g. mica/metal oxide

Bases for pearlescent pigments are, for example, pulverulent pigments or castor oil dispersions of bismuth oxychloride and/or titanium dioxide, and bismuth oxychloride and/or titanium dioxide on mica. The luster pigment listed under CIN 77163, for
20 example, is particularly advantageous.

Also advantageous are, for example, the following types of pearlescent pigment based on mica/metal oxide:

Group	Coating/layer thickness	Color
Silver-white pearlescent pigments	TiO ₂ : 40 – 60 nm	silver
Interference pigments	TiO ₂ : 60 – 80 nm	yellow
	TiO ₂ : 80 – 100 nm	red
	TiO ₂ : 100 – 140 nm	blue
	TiO ₂ : 120 – 160 nm	green
Color luster pigments	Fe ₂ O ₃	bronze
	Fe ₂ O ₃	copper
	Fe ₂ O ₃	red
	Fe ₂ O ₃	red-violet
	Fe ₂ O ₃	red-green
	Fe ₂ O ₃	black
Combination pigments	TiO ₂ / Fe ₂ O ₃	gold shades
	TiO ₂ / Cr ₂ O ₃	green
	TiO ₂ / Berlin blue	deep blue
	TiO ₂ / carmine	red

Particular preference is given, for example, to the pearlescent pigments obtainable from Merck under the trade names Timiron, Colorona or Dichrona.

- 5 The list of given pearlescent pigments is not of course intended to be limiting. Pearlescent pigments which are advantageous for the purposes of the present invention are obtainable by numerous methods known per se. For example, other substrates apart from mica can be coated with further metal oxides, such as, for example, silica and the like. SiO₂ particles coated with, for example, TiO₂ and Fe₂O₃ (“ronaspheres”), which are marketed by Merck and are particularly suitable for the optical reduction of fine lines are advantageous.
- 10

It can moreover be advantageous to dispense completely with a substrate such as mica. Particular preference is given to iron pearlescent pigments prepared without the use of mica. Such pigments are obtainable, for example, under the trade name Sicopearl Kupfer 1000 from BASF.

15

In addition, also particularly advantageous are effect pigments which are obtainable under the trade name Metasome Standard/Glitter in various colors (yellow, red, green, blue) from Flora Tech. The glitter particles are present here in mixtures with various auxiliaries and dyes (such as, for example, the dyes with the Colour Index (CI) Numbers 19140, 77007, 77289, 77491).

The dyes and pigments may be present either individually or in a mixture, and can be mutually coated with one another, different coating thicknesses generally giving rise to different color effects. The total amount of dyes and color-imparting pigments is advantageously chosen from the range from e.g. 0.1% by weight to 30% by weight, preferably from 0.5 to 15% by weight, in particular from 1.0 to 10% by weight, in each case based on the total weight of the preparations.

For the purposes of the present invention, it is also advantageous to provide cosmetic and dermatological preparations whose main purpose is not protection against sunlight, but which nevertheless have a content of UV protection substances. Thus, for example, UV-A and/or UV-B filter substances are usually incorporated into day creams or make-up products. UV protection substances, like antioxidants, and, if desired, preservatives, also constitute effective protection of the preparations themselves against spoilage. Also favorable are cosmetic and dermatological preparations in the form of a sunscreen.

Accordingly, for the purposes of the present invention, as well as comprising one or more UV filter substances according to the invention, the preparations additionally comprise at least one further UV-A and/or UV-B filter substance. The formulations may, although not necessarily, optionally also comprise one or more organic and/or inorganic pigments as UV filter substances which may be present in the water and/or oil phase.

Preferred inorganic pigments are metal oxides and/or other metal compounds which are insoluble or virtually insoluble in water, in particular oxides of titanium (TiO_2), zinc (ZnO), iron (e.g. Fe_2O_3), zirconium (ZrO_2), silicon (SiO_2), manganese (e.g. MnO), aluminum (Al_2O_3), cerium (e.g. Ce_2O_3), mixed oxides of the corresponding metals and
5 mixtures of such oxides. Barium sulfate (BaSO_4) is also advantageous for the purposes of the present invention.

For the purposes of the present invention, such pigments may advantageously be surface-treated ("coated"), the intention being to form or retain, for example, an
10 amphiphilic or hydrophobic character. This surface treatment can consist in providing the pigments with a thin hydrophobic layer by processes known per se.

Advantageous according to the invention are e.g. titanium dioxide pigments which have been coated with octylsilanol. Suitable titanium dioxide particles are
15 available under the trade name T805 from Degussa. Also particularly advantageous are TiO_2 pigments coated with aluminum stearate, e.g. those available under the trade name MT 100 T from TAYCA.

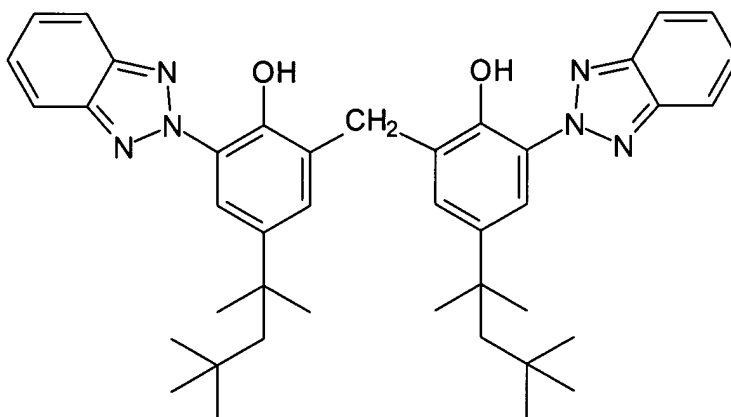
A further advantageous coating of the inorganic pigments consists of dimethyl-
20 polysiloxane (also: dimethicone), a mixture of completely methylated, linear siloxane polymers which have been terminally blocked with trimethylsiloxy units. Particularly advantageous for the purposes of the present invention are zinc oxide pigments which have been coated in this way.

Also advantageous is a coating of the inorganic pigments with a mixture of
25 dimethylpolysiloxane, in particular dimethylpolysiloxane having an average chain length of from 200 to 350 dimethylsiloxane units, and silica gel, which is also referred to as simethicone. In particular, it is advantageous for the inorganic pigments to be additionally coated with aluminum hydroxide or aluminum oxide hydrate (also: alumina,

CAS No.: 1333-84-2). Particularly advantageous are titanium dioxides which have been coated with simethicone and alumina, it also being possible for the coating to comprise water. An example thereof is the titanium dioxide available under the trade name Eusolex T2000 from Merck.

5

An advantageous organic pigment for the purposes of the present invention is 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol) [INCI: bisoctyltriazole], which is characterized by the chemical structural formula



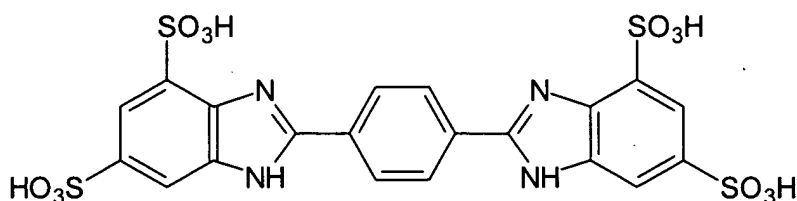
10 and is available under the trade name Tinosorb® M from CIBA-Chemikalien GmbH.

Preparations according to the invention advantageously comprise substances which absorb UV radiation in the UV-A and/or UV-B range, the total amount of filter substances being, for example, from 0.1% by weight to 30% by weight, preferably from 15 0.5 to 20% by weight, in particular from 1.0 to 15.0% by weight, based on the total weight of the preparations, in order to provide cosmetic preparations which protect the hair and the skin from the entire range of ultraviolet radiation. They can also be used as sunscreens for the hair or the skin.

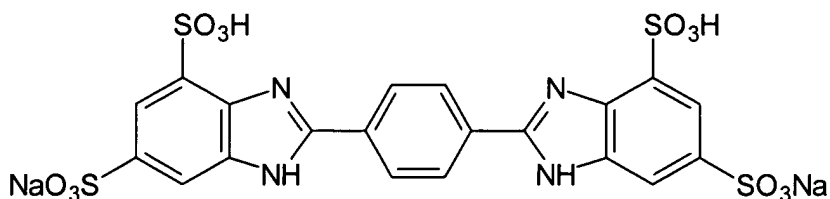
20 Advantageous UV-A filter substances for the purposes of the present invention are dibenzoylmethane derivatives, in particular 4-(tert-butyl)-4'-

methoxydibenzoylmethane (CAS No. 70356-09-1), which is sold by Givaudan under the name Parsol® 1789 and by Merck under the trade name Eusolex® 9020.

Further advantageous UV-A filter substances are phenylene-1,4-bis(2-benzimidazolyl)-3,3'-5,5'-tetrasulfonic acid:

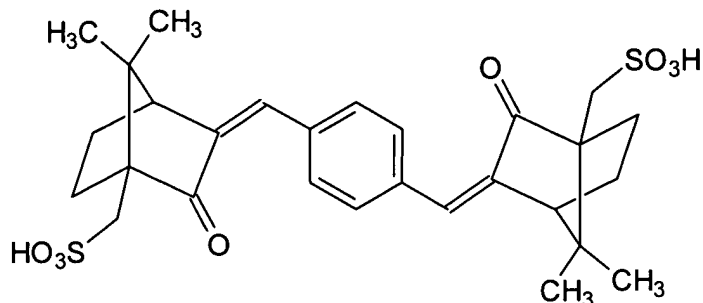


and its salts, particularly the corresponding sodium, potassium or triethanolammonium salts, in particular phenylene-1,4-bis(2-benzimidazolyl)-3,3'-5,5'-tetrasulfonic bis-sodium salt:



with the INCI name Bisimidazylate, which is available, for example, under the trade name Neo Heliopan AP from Haarmann & Reimer.

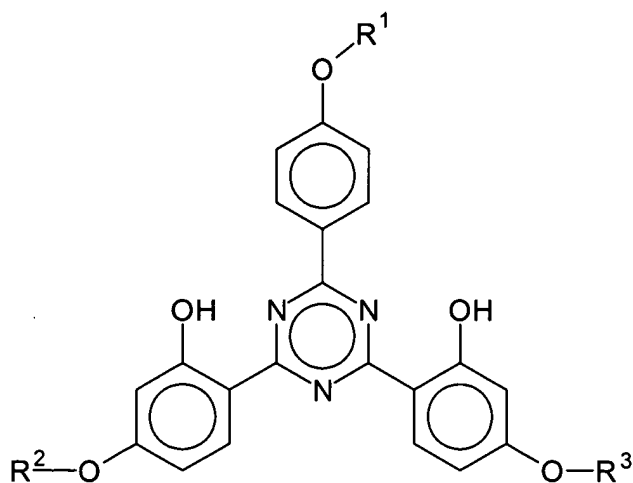
Also advantageous are 1,4-di(2-oxo-10-sulfo-3-bornylidenemethyl)benzene and salts thereof (in particular the corresponding 10-sulfato compounds, in particular the corresponding sodium, potassium or triethanolammonium salt), which is also referred to as benzene-1,4-di(2-oxo-3-bornylidenemethyl-10-sulfonic acid) and is characterized by the following structure:



Advantageous UV filter substances for the purposes of the present invention are also broadband filters, i.e. filter substances which absorb both UV-A and also UV-B radiation.

5

Advantageous broadband filters or UV-B filter substances are, for example, bisresorcinyltriazine derivatives having the following structure:



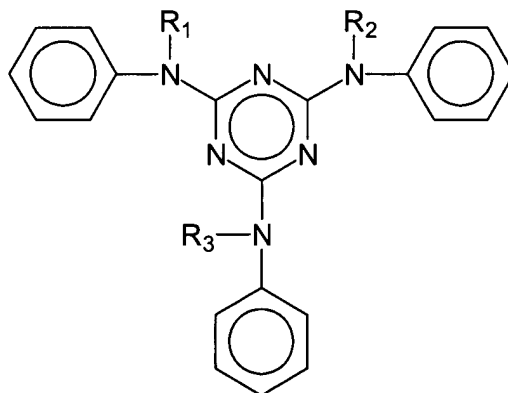
10 where R^1 , R^2 and R^3 independently of one another are chosen from the group of branched and unbranched alkyl groups having 1 to 10 carbon atoms, or are a single hydrogen atom. Particular preference is given to 2,4-bis{[4-(2-ethylhexyloxy)-2-hydroxy]phenyl}-6-(4-methoxyphenyl)-1,3,5-triazine (INCI: Aniso Triazine), which is available under the trade name Tinosorb® S from CIBA-Chemikalien GmbH

15

For the purposes of the present invention, particularly advantageous preparations which are characterized by high or very high UV-A protection preferably comprise two or more UV-A and/or broadband filters, in particular dibenzoylmethane derivatives [for example 4-(tert-butyl)-4'-methoxydibenzoylmethane], benzotriazole derivatives [for example 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)], phenylene-1,4-bis(2-benzimidazolyl)-3,3'-5,5'-tetrasulfonic acid and/or its salts, 1,4-di(2-oxo-10-sulfo-3-bornylidenemethyl)benzene and/or salts thereof and/or 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, in each case individually or in any combinations with one another.

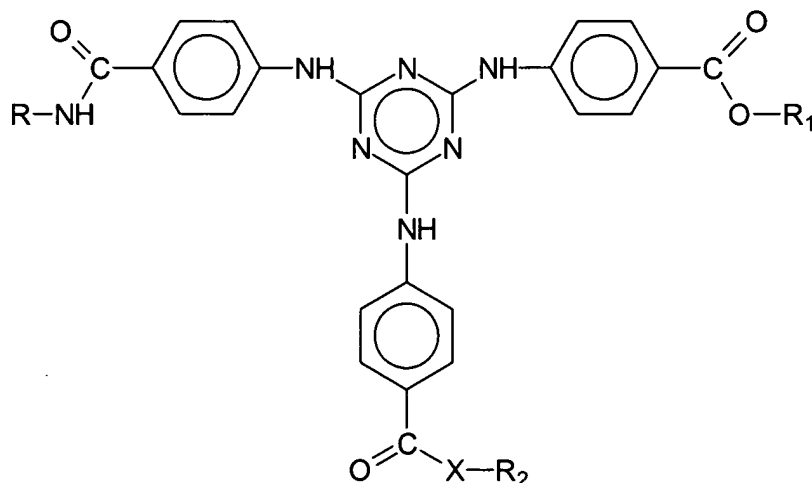
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Other UV filter substances, which have the structural formula



are also advantageous UV filter substances for the purposes of the present invention, for example the s-triazine derivatives described in European laid-open specification EP 570 838 A1, whose chemical structure is expressed by the generic formula

15

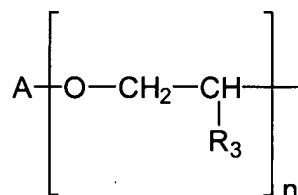


where

R is a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl radical, optionally substituted with one or more C₁-C₄-alkyl groups,

5 X is an oxygen atom or an NH group,

R₁ is a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl radical, optionally substituted by one or more C₁-C₄-alkyl groups, or a hydrogen atom, an alkali metal atom, an ammonium group or a group of the formula



10

in which

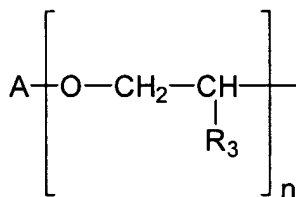
A is a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl or aryl radical, optionally substituted by one or more C₁-C₄-alkyl groups,

R₃ is a hydrogen atom or a methyl group,

15 n is a number from 1 to 10,

R₂ is a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl radical, optionally substituted by one or more C₁-C₄-alkyl groups, when X is the NH group, and

a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl radical, optionally substituted by one or more C₁-C₄-alkyl groups, or a hydrogen atom, an alkali metal atom, an ammonium group or a group of the formula



5

in which

A is a branched or unbranched C₁-C₁₈-alkyl radical, a C₅-C₁₂-cycloalkyl or aryl radical, optionally substituted by one or more C₁-C₄-alkyl groups,

R₃ is a hydrogen atom or a methyl group,

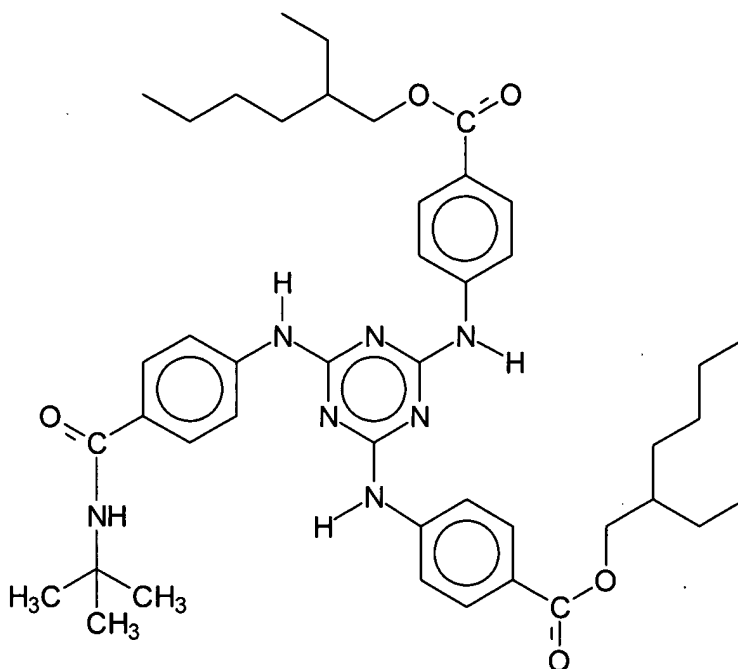
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n is a number from 1 to 10,

when X is an oxygen atom.

A particularly preferred UV filter substance for the purposes of the present invention is also an unsymmetrically substituted s-triazine, the chemical structure of

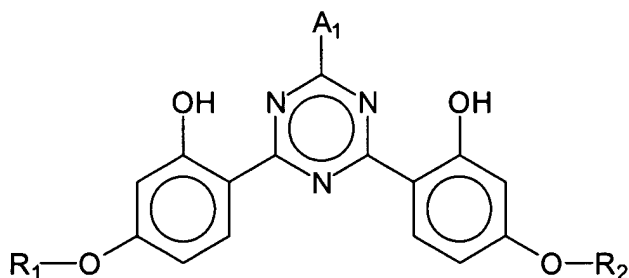
15 which is expressed by the formula



and which is also referred to below as dioctylbutylamidotriazone (INCI: Dioctylbutamidotriazone), and is available under the trade name UVASORB HEB from Sigma 3V.

- 5 Also advantageous for the purposes of the present invention is a symmetrically substituted s-triazine, tris(2-ethylhexyl) 4,4',4''-(1,3,5-triazine-2,4,6-triyltriimino)trisbenzoate, synonym: 2,4,6-tris[anilino-(p-carbo-2'-ethyl-1'-hexyloxy)]-1,3,5-triazine (INCI: Octyl Triazone), which is marketed by BASF Aktiengesellschaft under the trade name UVINUL® T 150.

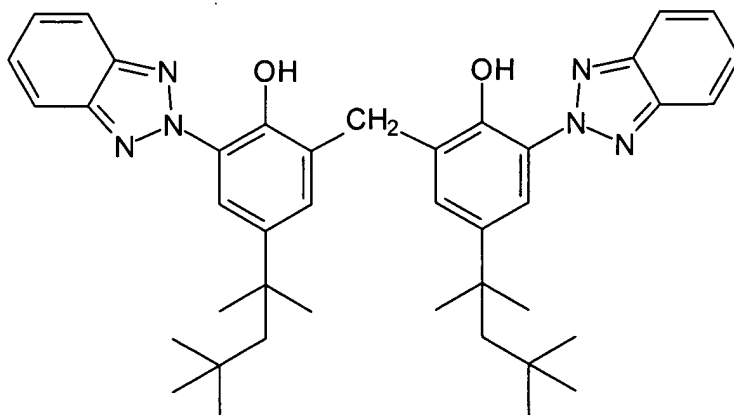
- 10 European laid-open specification 775 698 also describes preferred bisresorcinyltriazine derivatives, the chemical structure of which is expressed by the generic formula



where R_1 , R_2 and A_1 represent very different organic radicals.

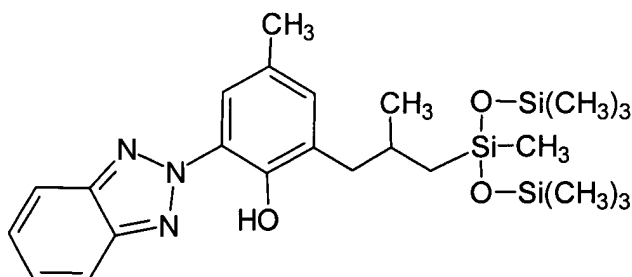
Also advantageous for the purposes of the present invention are 2,4-bis[[4-(3-sulfonato)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine sodium salt, 2,4-bis[[4-(3-(2-propyloxy)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-[4-(2-methoxyethylcarboxyl)phenylamino]-1,3,5-triazine, 2,4-bis[[4-(3-(2-propyloxy)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-[4-(2-ethylcarboxyl)phenylamino]-1,3,5-triazine, 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-(1-methylpyrrol-2-yl)-1,3,5-triazine, 2,4-bis[[4-tris(trimethylsiloxysilylpropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(2"-methylpropenyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine and 2,4-bis[[4-(1',1',1',3',5',5',5'-heptamethylsiloxy-2"-methylpropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine.

An advantageous broadband filter for the purposes of the present invention is 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol), which is characterized by the chemical structural formula



and is available under the trade name Tinosorb® M from CIBA-Chemikalien GmbH.

Another advantageous broadband filter for the purposes of the present invention
 5 is 2-(2H-benzotriazol-2-yl)-4-methyl-6-[2-methyl-3-[1,3,3,3-tetramethyl-1-[(trimethyl-
 silyl)oxy]disiloxanyl]propyl]phenol (CAS No.: 155633-54-8) having the INCI name
 Drometrizole Trisiloxane, which is characterized by the chemical structural formula



10

The UV-B and/or broadband filters can be oil-soluble or water-soluble.
 Examples of advantageous oil-soluble UV-B and/or broadband filter substances are:

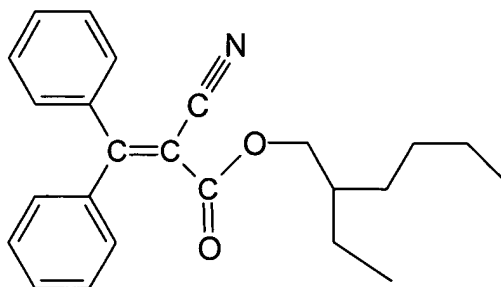
- 3-benzylidenecamphor derivatives, preferably 3-(4-methylbenzylidene)camphor, 3-benzylidenecamphor;
- 15 ▪ 4-aminobenzoic acid derivatives, preferably 2-ethylhexyl 4-(dimethylamino)-benzoate, amyl 4-(dimethylamino)benzoate;
- 2,4,6-trianilino(p-carbo-2'-ethyl-1'-hexyloxy)-1,3,5-triazine;

- esters of benzalmalonic acid, preferably di(2-ethylhexyl) 4-methoxybenzalmalonate,
- esters of cinnamic acid, preferably 2-ethylhexyl 4-methoxycinnamate, isopentyl 4-methoxycinnamate;
- derivatives of benzophenone, preferably 2-hydroxy-4-methoxybenzophenone, 2-hydroxy-4-methoxy-4'-methylbenzophenone, 2,2'-dihydroxy-4-methoxybenzophenone
- and UV filters bonded to polymers.

Examples of advantageous water-soluble UV-B and/or broadband filter substances are:

- salts of 2-phenylbenzimidazole-5-sulfonic acid, such as its sodium, potassium or its triethanolammonium salt, and also the sulfonic acid itself;
- sulfonic acid derivatives of 3-benzylidenecamphor, such as, for example, 4-(2-oxo-3-bornylidenemethyl) benzenesulfonic acid, 2-methyl-5-(2-oxo-3-bornylidenemethyl)sulfonic acid and salts thereof.

A further light protection filter substance which can be used advantageously according to the invention is ethylhexyl 2-cyano-3,3-diphenylacrylate (octocrylene), which is available from BASF under the name Uvinul® N 539 and is characterized by the following structure:



It can also be of considerable advantage to use polymer-bonded or polymeric UV filter substances in the preparations according to the present invention, in particular those described in WO-A-92/20690.

- 5 In some instances, it can also be advantageous to incorporate further UV-A and/or UV-B filters in accordance with the invention into cosmetic or dermatological preparations, for example certain salicylic acid derivatives, such as 4-isopropylbenzyl salicylate, 2-ethylhexyl salicylate (= octyl salicylate), homomenthyl salicylate.
- 10 The list of given UV filters which can be used for the purposes of the present invention is, of course, not intended to be limiting.

 The preparations according to the invention advantageously comprise the substances which absorb UV radiation in the UV-A and/or UV-B region in a total
15 amount of, for example, 0.1% by weight to 30% by weight, preferably 0.5 to 20% by weight, in particular 1.0 to 15.0% by weight, in each case based on the total weight of the preparations, in order to provide cosmetic preparations which protect the hair or the skin from the entire range of ultraviolet radiation. They can also be used as sunscreens for the hair or the skin.

- 20 The examples below serve to illustrate the present invention without limiting it. Unless stated otherwise, all amounts, proportions and percentages are based on the weight and the total amount or on the total weight of the preparations.

EXAMPLES

Example 1 (foam-like O/W cream)

Emulsion I	% by wt.
Stearic acid	3.00
Cetyl alcohol	8.50
PEG-20 stearate ¹	8.50
C ₁₂₋₁₅ alkyl benzoate ²	4.00
Paraffin oil ³	5.00
Isohexadecane ⁴	2.00
Glycerol	5.00
Sodium hydroxide	q.s.
Preservative	q.s.
Perfume	q.s.
Water, demineralized	ad 100
pH adjusted to 6.5-7.5	

To prepare the foam, 90% by volume of emulsion I are foamed with 10% by volume of a propellant gas mixture of propane and butane. The foaming can take place, for example by bubbling gas into the preparations or (vigorously) beating, shaking, spraying or stirring it in the gas atmosphere in question.

5 ¹ Myrj 49, ICI Surfactants

² Finsolv TN, WITCO Goldschmidt

³ Pionier 2071, DEA mineral oil

⁴ Solvent ICH, EC Erdölchemie Bayer AG

Example 2 (O/W lotion)

Emulsion II	% by wt.
Stearic acid	2.00
Myristyl alcohol	1.50
Cetylstearyl alcohol	0.50
PEG-100 stearate ¹	3.0
Mineral oil ²	5.00
Hydrogenated polyisobutene ³	15.0
Cyclomethicone ⁴	5.00
Glycerol	3.00
Sodium hydroxide	q.s.
Preservative	q.s.
Perfume	q.s.
Water, demineralized	ad 100
pH adjusted to 5.0-6.5	

To prepare the foam, 70% by volume of emulsion II are foamed with 20% by volume of carbon dioxide^a.

¹ Myrj 59p, ICI Surfactants, ² Hydrobrite 1000 PO, Witco BV, ³ Polysynlan, Chemische Fabrik Lehrte, ⁴ Dow Corning Fluid 245, Dow Corning

Example 3 (O/W lotion)

Emulsion III	% by wt.
Stearic acid	5.00
Cetylstearyl alcohol	5.50
PEG-30 stearate ¹	1.00
Cyclomethicone ²	3.00
Isoeicosane ³	10.00
Polydecene ⁴	10.00
Citric acid	0.10
Glycerol	3.00
Perfume, preservative,	q.s.
Sodium hydroxide	q.s.
Dyes etc.	q.s.
Water	ad 100
pH adjusted to 6.0-7.5	

To prepare the foam, 95% by volume of Emulsion III are foamed with 5% by volume of a propellant gas mixture of propane and butane^a.

¹ Myrj 51, ICI Surfactants, ² Dow Corning Fluid 245, Dow Corning, ³

Isoeicosane, EC Erdölchemie GmbH, ⁴ Nexbase 2006FG, Neste PAO N.V.

Example 4 (O/W emulsion make-up)

Emulsion IV	% by wt.
Palmitic acid	2.00
Cetyl alcohol	2.00
PEG-100 stearate ¹	2.00
Dimethicone ²	2.50
Paraffin oil ³	9.50
Dicaprylyl ether ⁴	2.00
Glycerol	3.00
Mica	1.00
Iron oxide	1.00
Titanium dioxide	4.50
Vitamin A palmitate	0.10
Sodium hydroxide	q.s.
Preservative	q.s.
Perfume	q.s.
Water, demineralized	ad 100

pH adjusted to 6.0-7.5

To prepare the foam, 85% by volume of Emulsion IV are foamed with 15% by volume of nitrogen^a.

¹ Myrj 59p, ICI Surfactants, ² Wacker silicone oil AK 35, Wacker. ³ Pionier 6301, DEA mineral oil, ⁴ Cetiol OE, Henkel Cognis

Example 5 (O/W cream)

Emulsion V	% by wt.
Stearic acid	4.00
Cetyl alcohol	2.00
PEG-30 stearate ¹	2.00
Sorbitan monostearate ²	1.50
Paraffin oil ³	5.00
Cyclomethicone ⁴	5.00
Vitamin E acetate	1.00
Retinyl palmitate	0.20
Glycerol	3.00
BHT	0.02
Disodium EDTA	0.10
Perfume, preservative, dyes	q.s.
Potassium hydroxide	q.s.
Water,	ad 100

pH adjusted to 5.0-7.0

To prepare the foam, 89% by volume of Emulsion V are foamed with 11% by volume of nitrous oxide^a.

¹ Myrj 51, ICI Surfactants, ² Glycomol S, Akzo Nobel, ³ Pionier 2076, DEA mineral oil ⁴ Dow Corning Fluid 245, Dow Corning

Example 6 (O/W lotion)

Emulsion VI	% by wt.
Stearic acid	4.00
Cetylstearyl alcohol	1.00
PEG-100 stearate ¹	1.00
Paraffin oil ²	6.50
Dimethicone ³	2.50
Vitamin E acetate ⁴	2.00
Glycerol	3.00
Perfume, preservative, dyes etc.	q.s.
Sodium hydroxide	q.s.
Water	ad 100
pH adjusted to 6.0-7.5	

To prepare the foam, 92% by volume of Emulsion VI are foamed with 8% by volume of a propellant mixture of propane and butane^a.

¹ Myrj 59p, ICI Surfactants, ² Pionier 2076, DEA mineral oil, ³ Wacker silicone oil AK 50, Wacker

Example 7 (Sunscreen cream)

Emulsion VII	% by wt.
Stearic acid	1.00
Cetylstearyl alcohol	4.00
Myristyl alcohol	1.00
PEG-20 stearate ¹	1.00
Caprylic/capric triglyceride ²	2.00
Paraffin oil ³	15.50
Dimethicone ⁴	0.50
Octyl isostearate ⁵	5.00
Glycerol	3.00
Octyl methoxycinnamate ⁶	4.00
Butylmethoxydibenzoylmethane ⁷	3.00
Ethylhexyltriazone ⁸	3.00
BHT	0.02
Disodium EDTA	0.10
Perfume, preservative, dyes, etc.	q.s.
Potassium hydroxide	q.s.
Water	ad 100

pH adjusted to 5.0-6.0

To prepare the foam, 85% by volume of Emulsion VII are foamed with 15% by volume of helium^a

¹ Myrj 49, ICI Surfactants, ² Miglyol 812, Uniqema, ³ Pionier 2076, DEA mineral oil, ⁴ Wacker silicone oil AK 50, Wacker, ⁵ Prisorine 2036, Uniqema, ⁶ Escalol 5571, ISP-Van Dyke, ⁷ Parsol 1789, Hoffmann La Roche, ⁸ Uvinul T150